

near the base. The tips of the anterior wings in some lights steel blue. Dark margins enclose all these white markings. The apical black spot is almost concealed in the deep ground colour of the wings. Posterior wings purplish, cilia the same.

Taken in the beginning of July, near Renfrew, amongst birches in a damp part of a wood.

III. *Critical Remarks upon the British Elateridæ, with Descriptions of some of the Species.* By JOHN CURTIS, F.L.S., &c.

[Read 6th February, 1854.]

WHAT is the *Elater aterrimus* of Linnæus? This simple question has led to numerous discussions, and before the genus *Elater* was published in the "British Entomology," I spared no pains to arrive at the truth, which one would think was easy enough from our possessing the collections of Linnæus: such, however, is not the case, and, as I have frequently stated, unless the specimens in the Linnæan cabinet agree perfectly with the descriptions in the "Fauna Suecica" or the "Systema Naturæ," the authority is worthless. It is not to be supposed that the collection is as the elder Linnæus left it; for, owing to the natural casualties attending such fragile and perishable objects as insects, when neglected, and the various hands the property has gone through during the greater part of a century, it could not be expected to remain intact: moreover, at that early stage of natural science, it cannot be controverted that species quite distinct were included in cabinets under the same name, and Linnæus, no doubt, during his lifetime, left a great deal to be filled up by his pupils and friends. Indeed, as far as nomenclature goes, no collection that I have seen, of half the standing of Linnæus's, has been worth much to identify species; and this misfortune has been daily increasing from the egregious folly which has been so prevalent of multiplying species, and, under the most frivolous pretext, of superseding old and well-established names.

This is so important a subject, that I must be permitted to guard the rising generation of Entomologists against being misled by what is termed high authorities—indeed, not to put implicit

faith in any collection, but to refer to standard books. For my own part, if a specimen in any collection, however celebrated, does not agree essentially with the author's printed description, I totally disregard it. I make no exceptions, being justified by my own experience of many years, as will be evident from the following facts.

The Banksian collection of insects, named by Fabricius, was in such a state of confusion when bequeathed to the Linnæan Society, that some twenty years since the late Mr. C. T. Bennett, Mr. Vigors and Mr. Haworth undertook, with the volumes of Fabricius before them, to correct the nomenclature, assigning to each specimen the name it was believed that Fabricius had given it—by no means an easy task, where many must have been lost and others added. Since then the specimens have got mouldy and have been cleaned, which with the greatest care cannot fail to lead to alterations, to say nothing of unavoidable accidents.

When I went to see Mr. Marsham's collection before his death, I found it in the possession of a naval officer, who kept it clean by reversing the drawers and rapping the bottoms, by which process heads, trunks and entire insects fell upon the floor, and numbers of labels were changed or lost, or, what was worse, quite different things were eventually substituted to replace them. During my visit I picked up and restored to the drawers no inconsiderable number of specimens.

And even Mr. Kirby's collection of British insects was entirely neglected long before he presented it to the Entomological Society, owing in a great measure to his attention being devoted to exotic Entomology: he was also much in want of more drawers, and, to make room for Captain Hancock's fine *Coleoptera* from Brazil, Mr. Kirby took out his entire collection of bees, so that when I visited him at Barham in 1817 it was stuck on sheets of cork and mounted on the top of a book-case, covered with dust and mutilated by the larvæ of moths and spiders; and had I not volunteered to clean the specimens and place them in security, that interesting collection would never have reached its present destination—it must have perished in a few months! As it was, many of the typical specimens were destroyed, and it was necessary to transfer the labels to duplicate specimens, whenever they could be found.

From this digression I will return to the *Elaters*. Having purchased Mr. Charles Griesbach's Cabinet of *Coleoptera*, I found it very rich in *Elaters*, and amongst them one quite new to me; and wishing to give a figure of it in my "British Entomology," I began to search for its name, and as it appeared to be the *Elater*

aterrimus of Linnæus, I thought the point would be readily settled by a visit to Soho Square. On consulting the Linnean cabinet what was my surprise to find the only specimen to represent *Elater aterrimus* was a greasy individual of *E. murinus*! I thought, however, that my insect agreed so well with the description in the "Fauna Suecica,"* that I might adopt the Linnæan name, which I did in June, 1838.† Having since then received specimens from Denmark and Germany of the species considered abroad to be the true *E. aterrimus*, and having seen Mr. Stephens's collection, now deposited in the British Museum, I will give the result of my researches.

Sp. 1. *Ectinus aterrimus*, Linn., Pauz. 101, 15; Payk. 3, 6, 8; Gyl. i. p. 425; *atratus*, Ill. Mag.; *obscurus*, Oliv. 2, Genus 31, pl. 8, fig. 76. (Pl. II. fig. 1.)

Long and narrow, shining black and minutely punctured; antennæ as long as the thorax (fig. *a*); basal joint long and stoutish; second and third of equal length, obovate, the following compressed, a little longer and somewhat serrated. Head deflexed, obtuse; clypeus trigonate, truncate (fig. *b*). Thorax linear, elongated, with a channel down the centre, strongest at the base; the angles prominent, stout but acute; pectoral spine long, pointed, depressed, convex at the base. Elytra twice as long as the thorax and a little broader, punctate-striate, faintest at the base; tarsi simple, reddish-fuscous.

6 lines long, $1\frac{1}{2}$ broad.

The late Dr. Sturm, of Nuremburg, sent me this species labelled *E. aterrimus*, Linn., and I have another from Denmark: it is of course a native of Sweden, but I have never seen a British specimen. Mr. Stephens having copied Gyllenhal's essential Latin character verbatim, it answers to this insect, but it entirely disagrees with his English description, and likewise with the specimens named in his collection *Ectinus aterrimus*, which belong to a totally different section.

Sp. 2. *Ectinus?* *gagates*, Curt.; *Elater aterrimus*, Curt. Brit. Ent. fol. and pl. 694. (Pl. II. fig. 2.)

Long, narrow, depressed, dead-black; antennæ scarcely so long as the thorax (fig. *c*), serrated, excepting the basal joint, which is short and stout, and the second and third, which are small and obovate. Head short, semi-orbicular (fig. *d*); clypeus trigonate, and extending a little over the labrum, the trophi nearly con-

* Page 206, No. 726.

† Fol. and Pl. 694.

cealed. Thorax linear, extremely finely punctured, with a faintly impressed line posteriorly; the angles well produced and acute, forming a sharp ridge at the base; pectoral spine long, acute and grooved at the base. Elytra not broader than the thorax, but more than twice as long, slightly glossy, rather thickly punctured and striated; the striæ close together and rough at the apex, which is emarginate. Legs very slender, knees slightly ferruginous; tarsi simple; claws ochreous.

5 lines long, $1\frac{1}{3}$ broad.

This fine and very distinct insect does not agree with any of the genera with which I am acquainted, but for the present I have placed it with *Ectinus?* rather than run the risk of imposing a generic name unnecessarily. I have only seen the specimen in my Collection, which was taken at Windsor, and another foreign one in the British Museum. Mr. Stephens, relying on his memory, has unluckily applied Paykull's descriptions of *Elater nigrinus?* to this insect, with points of doubt which were most necessary, for they do not agree in any way, nor belong even to the same genus. Our insect is not shining; the antennæ are not so long as the thorax; the tarsi are not pale, and it is very much longer than *Elater bipustulatus*, which Paykull gives as the size of *E. nigrinus*.

Sp. 3. *N. G.?* *puncto-lineatus*, Zool. Journ. iv. 524; *aterrimus*, Stephens' Cabinet. (Pl. II. fig. 3.)

Robust, elliptical, very convex, slaty-black, glossy but dull, being clothed with very short ochreous pubescence. Antennæ scarcely so long as the thorax (fig. *e*); basal joint small but stout; second and third globose, the following compressed and subseriated, the joints being obtrigonal. Head and thorax thickly and firmly punctured; clypeus short, scarcely convex in front and not margined, projecting and not drooping over the mouth (fig. *f*). Thorax semioval, considerably broadest at the base, with a smooth line down the centre, the angles forming triangular lobes, not acuminate but slightly clawed; pectoral spine rather short, compressed and not concave at the base, scutellum depressed, semi-oval. Elytra a trifle broader than the thorax, and twice as long, minutely punctured and firmly striate-punctate. Legs stout, tarsi simple, compressed, brownish, tawny at the extremity.

$6\frac{1}{2}$ lines long, 2 lines broad.

This is the *Elater puncto-lineatus*, as referred to above, in the Zoological Journal. Mr. Stephens, in his Illustrations, refers

also for this species to the "Zool. Journal, vol. iv. p. 211, under the name of *Elater pilistriatus*," but this is altogether an unaccountable mistake, for nothing of the kind is to be found. All Mr. Stephens' other synonyms being copied from Gyllenhal, they do not belong to this species but to the Swedish naturalists' *E. aterrimus*.

My specimen of this very distinct species was taken at Dover by the late Mr. Leplastrier, and two were captured in a meadow near Twickenham, Surrey, June, 1827. I am also indebted to Mr. T. Marshall for a fine female, which he discovered, with twelve others and two males, last July, on a rush at Sandown, near Deal in Kent.

As I have now shown that three distinct species, belonging to different genera, have all been described to represent the *Elater aterrimus* of Linnæus, it must be borne in mind that at present the true type has not been detected as an inhabitant of our island; that the *E. aterrimus* of "British Entomology" is *apparently* a species unknown and hitherto undescribed, except in that work; and that the *E. aterrimus* of Stephens' "Illustrations" is the *E. puncto-lineatus* of the Zoological Journal. It is possible the two last may have been described in foreign works; but at present, not being able to ascertain that such is the case, I have identified them by adopting Mr. Pelerin's name for one species, and applying my manuscript name to the other.

I will now proceed to continue my remarks upon a few other species of *Elaters*, which are either but little known or have been described in miscellaneous works, where they have not met the entomological eye, especially upon the Continent.

Sp. 4. *Elater nigrinus*, Payk. iii. 39, 44. (Pl. II. fig. 4.)

Shining black, clothed with rather short depressed fuscous pubescence. Antennæ scarcely longer than the thorax (fig. *g*), basal joint clavate, second and third smaller, the former subglobose, the latter subovate, the following much broader, compressed and obtrigonate. Head convex (fig. *h*), rather coarsely punctured; clypeus subtrigonate and margined; trophi nearly concealed. Thorax semioval, convex, not very thickly punctured; anterior margin concave, angles projecting and acute; pectoral spine long, sharp and inflexed. Elytra a little broader than the thorax, and more than twice as long, tapering considerably beyond the middle, punctured, rugose when highly magnified, deeply striated. Legs slender, pitchy; tarsi long, very slender, simple, fibrous. Underside punctured.

3 & 4 lines long, $1\frac{1}{3}$ broad.

My three specimens of this rare species were bred at Windsor, by Mr. C. Griesbach. This is the true *E. nigrinus*, which is included in the group comprising *E. sanguineus*, and the other scarlet and black species. They form the genus *Ampedus* of Dejean, but in Eschscholtz's works they represent the genus *Elater*.

Sp. 5. *Aplotarsus maritimus*, Curtis in "Annals of Natural History" for 1840, vol. v. p. 277. (Pl. II. fig. 5.)

Shining bluish black, sparingly and indistinctly pubescent. Antennæ much longer than the thorax (fig. *i*), basal joint stout, globose, second minute, the following compressed, elongated, obovate and truncate; third and fourth nearly of equal length. Head flattened, thickly but not regularly punctured, a circular impression above the clypeus, with a central channel; eyes not touching the thorax; clypeus semicircular, margined, not concealing the mouth; palpi clavate-truncate (fig. *k*). Thorax suborbicular, convex, thickly but faintly punctured, hinder angles prominent and very acute, pectoral spine elongate-conic, cup-shaped at the base, scutellum cordate. Elytra elliptical, depressed, broader than the thorax and more than twice as long, thickly and minutely punctured, and strongly striated. Coxæ and trochanters ferruginous and ochreous; legs slender, especially the tarsi, which are simple and pitchy, the fourth joint not very short.

2 lines long, $\frac{2}{3}$ broad.

I first discovered this very distinct little *Elater* under *rejectamenta* at Broughton, on the Lancashire coast; this was on the 30th June, 1827: the Rev. Mr. Little subsequently took it at Raehills, and I have heard it has also been found on Skiddaw, the end of April.

Mr. Stephens gives this as a doubtful variety of *Sericosomus brunneus*; it is therefore necessary to say that *A. maritimus* will not associate with that genus. It appears to be an *Aplotarsus*, and it approximates to *Elater rufipes* and *E. testaceus*, Fab.; both of which are included in the genus *Cardiophorus* by Dejean and Redtenbacher, but they have a very different habit to the typical species.

Sp. 6. *Cardiophorus formosus*, Curtis, in Ann. Nat. Hist. vol. v. p. 278. (Pl. II. fig. 6.)

Black, shining; head small, with variolated punctures; clypeus rounded, margined. Thorax entirely red, somewhat bell-shaped, thickly punctured like the head; the angles trigonate, but obtuse. Elytra scarcely twice as long, with firmly punctured striæ, very deep at the base; before the middle is a double crescent-shaped,

pale ochreous fascia, and a straight and broader one towards the apex; the legs (at least the anterior) are red.

$3\frac{1}{3}$ lines long, $1\frac{1}{4}$ broad.

This beautiful insect is nearly allied to the *Elater sex-punctatus* of Illiger, and the *Cardiophorus ornatus* of Dejean, both of which species inhabit Spain. My specimen of *C. formosus*, which I believe is unique, was given to me by Mr. Simmons. It was taken from the roots of some celery in a cottage garden near Wentworth House, Yorkshire. Unfortunately it was mutilated after being captured, by which accident the antennæ and some of the legs are lost.

Sp. 7. *Aplotarsus? cothurnatus*, Curt. MSS. (Pl. II. fig. 7.)

Elongate, narrow, shining black, not very thickly punctured, but clothed with very short, depressed, ochreous pubescence. Antennæ stoutish, scarcely longer than the thorax (fig. *l*), shorter in the female, basal joint clavate, second and third small, obovate-truncate; the remainder longer, compressed, elongate, obovate, truncated. Head semiglobose (fig. *m*), with a ridge down the centre, most evident in front; clypeus bent over the mouth, and forming a kind of lobe, coarsely punctured, not margined; palpi ferruginous, ovate, obliquely truncated. Thorax very convex, longer than broad, oval, truncated and broadest at the base, a short channel or impression behind the middle, base transversely depressed, the angles spreading, elongated, stout, trigonate and carinated; pectoral spine long, acute, with a central groove, dilated at the base; scutellum depressed, ovate-conic. Elytra elliptic, a little broader than the thorax and nearly thrice as long, depressed, deeply striate-punctate, the apex with a flattened margin. Legs testaceous, thighs pitchy, tips subcastaneous; tarsi simple and very slender.

4 lines long, and $1\frac{1}{4}$ broad.

I possess a pair of this *Elater*, which was taken at Windsor by Mr. C. Griesbach. It appears to be undescribed, but it is allied to the *E. longulus* of Gyllenhal; and although at first sight it resembles *Limoniæ minutus* and its congeners, it does not belong to the same section, neither is it a true *Aplotarsus* I presume.

I have not yet had an opportunity of studying the genera of Eschscholtz, but from casual observations I am led to believe they are very arbitrary, and I therefore regret to see his system superseding the philosophic classification of Latreille, which was published in the third volume of the "Annalés de la Soc. Ent. de France." I have elsewhere intimated that the larvæ exhibit several types of form which might possibly assist (when more generally

known) in the arrangement of this fine family.* There are also characters to be derived from the trophi, the antennæ, the sternum and the feet, as shown by Latreille; and if the antennæ could be depended upon, it would be most desirable to make them a leading secondary character, as the mouth is often so concealed that without dissection it is impossible to get a view of the palpi. One objection apparently in adopting the antennæ to furnish generic characters is, that they not only vary specifically, but they differ in the sexes. Such being the case, the female antennæ must not be disregarded; and I expect, if well analyzed, many of the genera would subside into more useful sections. A monograph on the *Elateridæ* would be an enterprise that would well reward any one who had the leisure to undertake such a labour of love, if the task were executed faithfully. I believe no one at present has gone beyond parcelling the British species into somewhat imaginary groups; and the best sketch I have met with of the sections of our British species was published in Mr. Westwood's Modern Classification.

I will only add, as it may not be generally known to Entomologists, that in my Reports published in the "Journal of the Royal Agricultural Society of London," I have entered at great length upon the economy of the Wire-worms; and the better to illustrate their history, figures and elaborate dissections are given of them, as well as of ten species of *Elaters*, and several of their larvæ, with the parasitic insects which infest them in the wire-worm and the imago state.†

* Vol. i. 3rd Series, p. 43, Pl. 2, No. 3.

† Vol. v. p. 180—237, and Plates I and J. Vide also Morton's "Cyclopedia of Agriculture" and "Catalogue des Larves des Coléoptères," par M. F. Chapuis and M. E. Candèze, p. 141.

EXPLANATION OF PLATE II.

- Fig. 1. *Ectinus aterrimus*, Linn.
1 a, the antenna; 1 b, front view of head.
- Fig. 2. *Ectinus? gagates*, Curt.
2 c, the antenna; 2 d, front view of head.
- Fig. 3. Nov. Gen.? *puncto-lineatus*, Pelerin.
3 e, the antenna; 3 f, front view of head.
- Fig. 4. *Elater nigrinus*, Payk.
4 g, the antenna; 4 h, front view of head.
- Fig. 5. *Aplotarsus maritimus*, Curt.
5 i, the antenna; 5 k, front view of head.
- Fig. 6. *Cardiophorus formosus*, Curt.
- Fig. 7. *Aplotarsus? cothurnatus*, Curt.
7 l, the antenna; 7 m, front view of head.

N.B. All the figures are magnified and drawn from specimens in the Author's Collection; the cross lines showing the dimensions of the *Elaters*.